

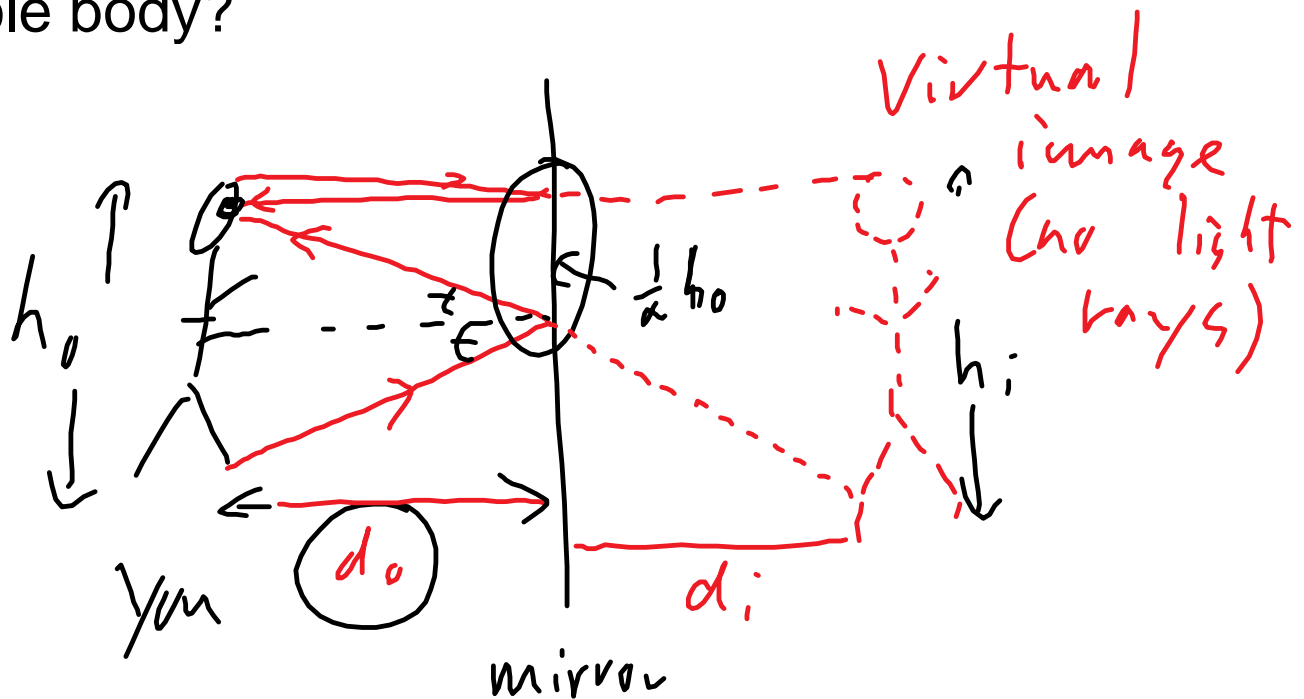
Playland - don't forget Thursday May 5th
Assignment is due Friday, May 13th.

Geometric Optics (chapters 18, 19)

Curved Mirrors

Plane mirror - flat mirror.

What is the smallest mirror that will show your whole body?



$$M = \frac{h_i}{h_o} = 1 \quad h_i = h_o$$

$$M = -\frac{d_i}{d_o} \quad \text{so } d_i = -d_o$$

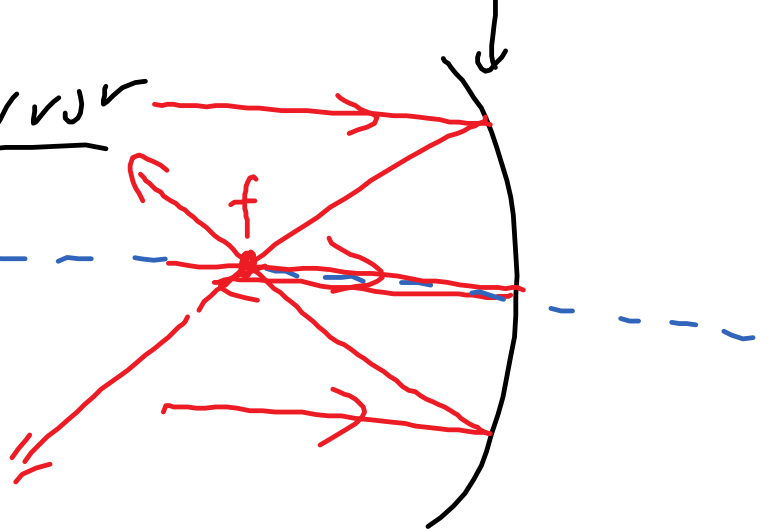
$$m = -\frac{d_i}{d_o}$$

$$\text{So } d_i = -d_o$$

concave?

Concave mirror

Principal Axis

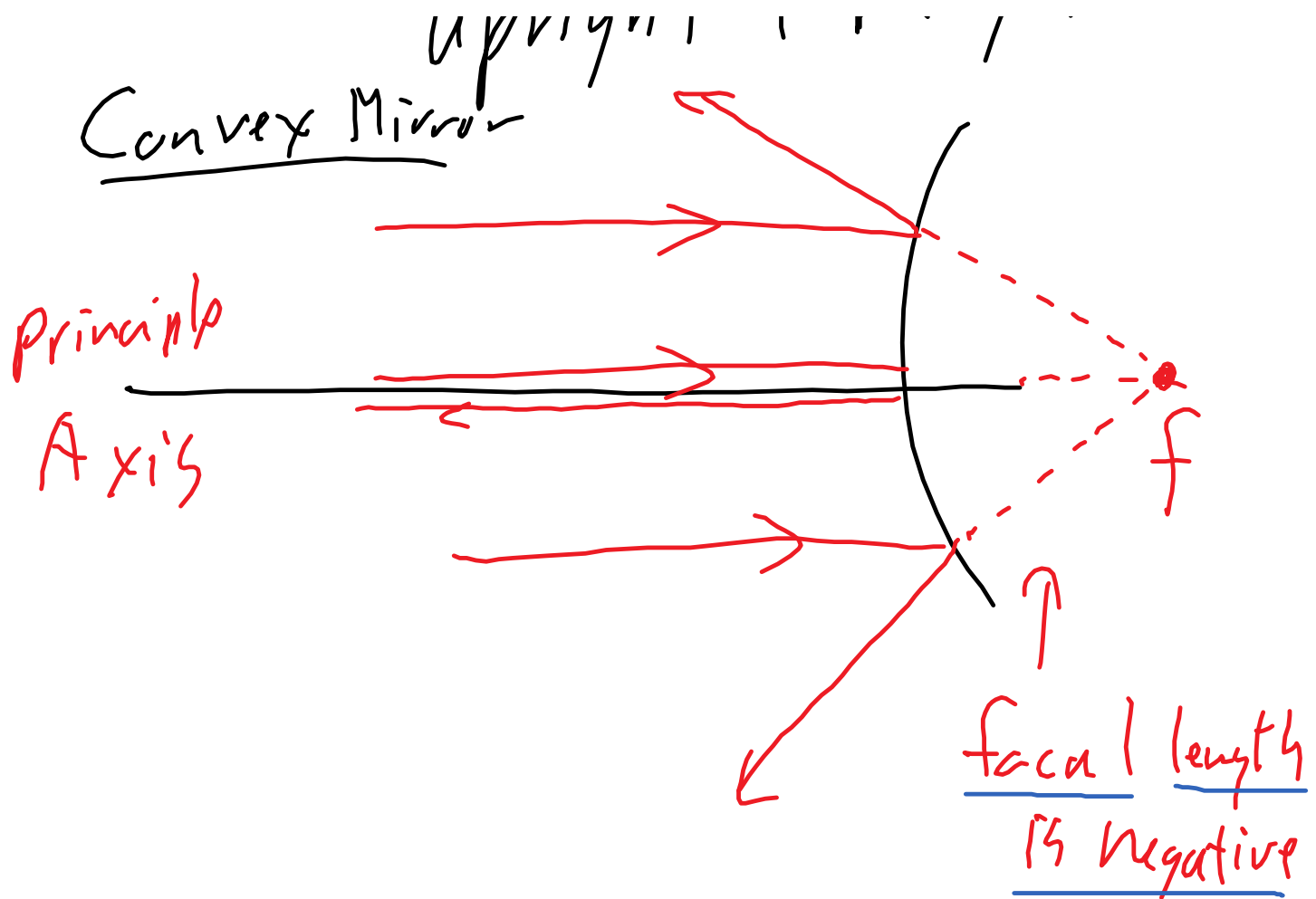


f is the focal Point

* rays parallel to the principle axis reflect to/from the focal point

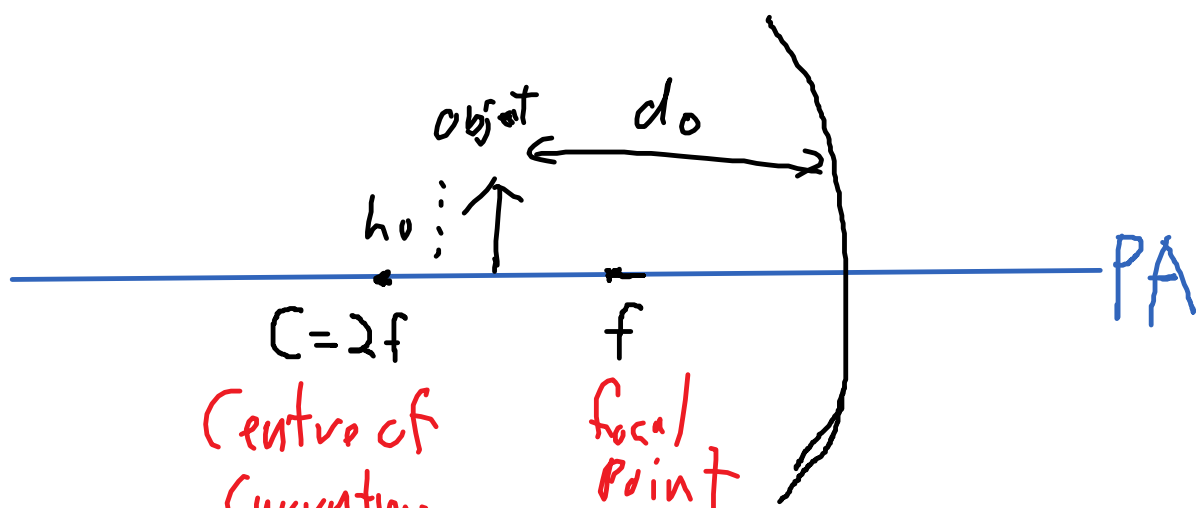
- Objects $d_o > f$, the image is flipped

$d_o < f$ image is upright + larger



Rules for Ray diagrams:

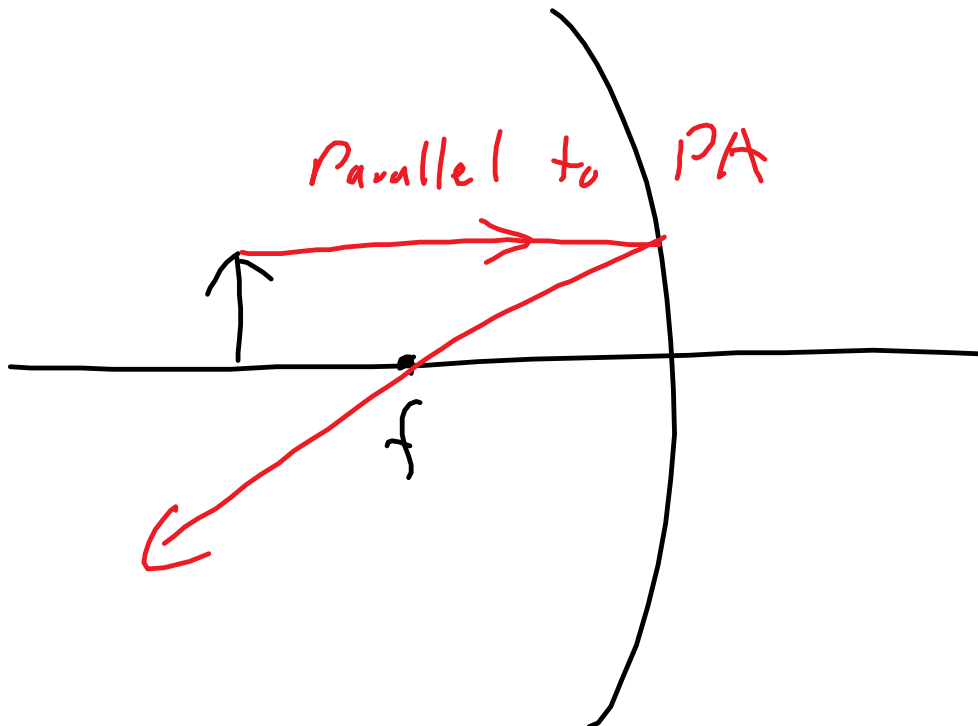
1. Draw a principle axis (horizontal line)
2. Draw a mirror or lens centred on the principle axis.
3. Draw an arrow from the principle axis to a height, h_o to represent the object.



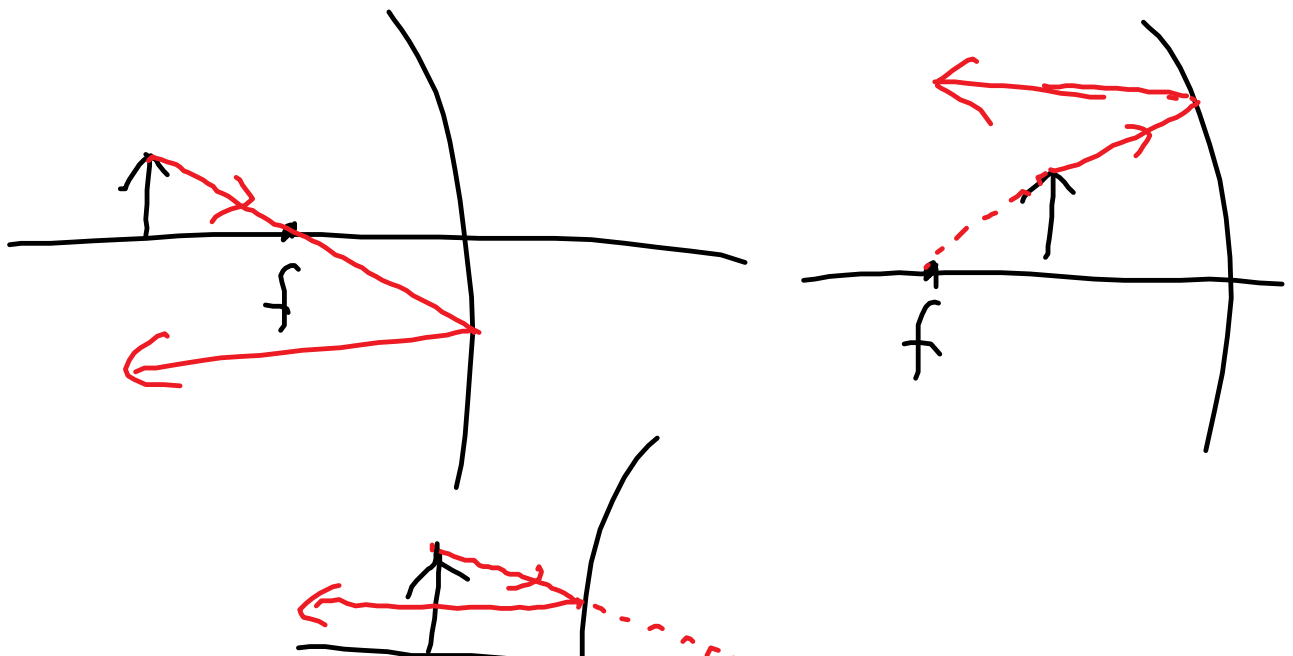
Centre of
Curvature

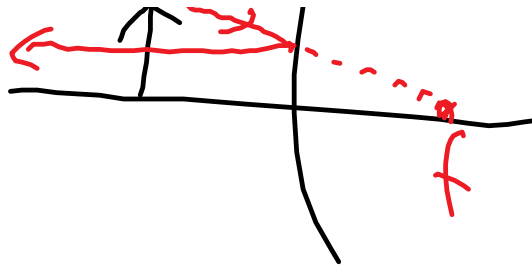
focal
Point

4. Draw a light ray from the top of the arrow parallel to the principle axis to the mirror. It reflects to/from the focal point.

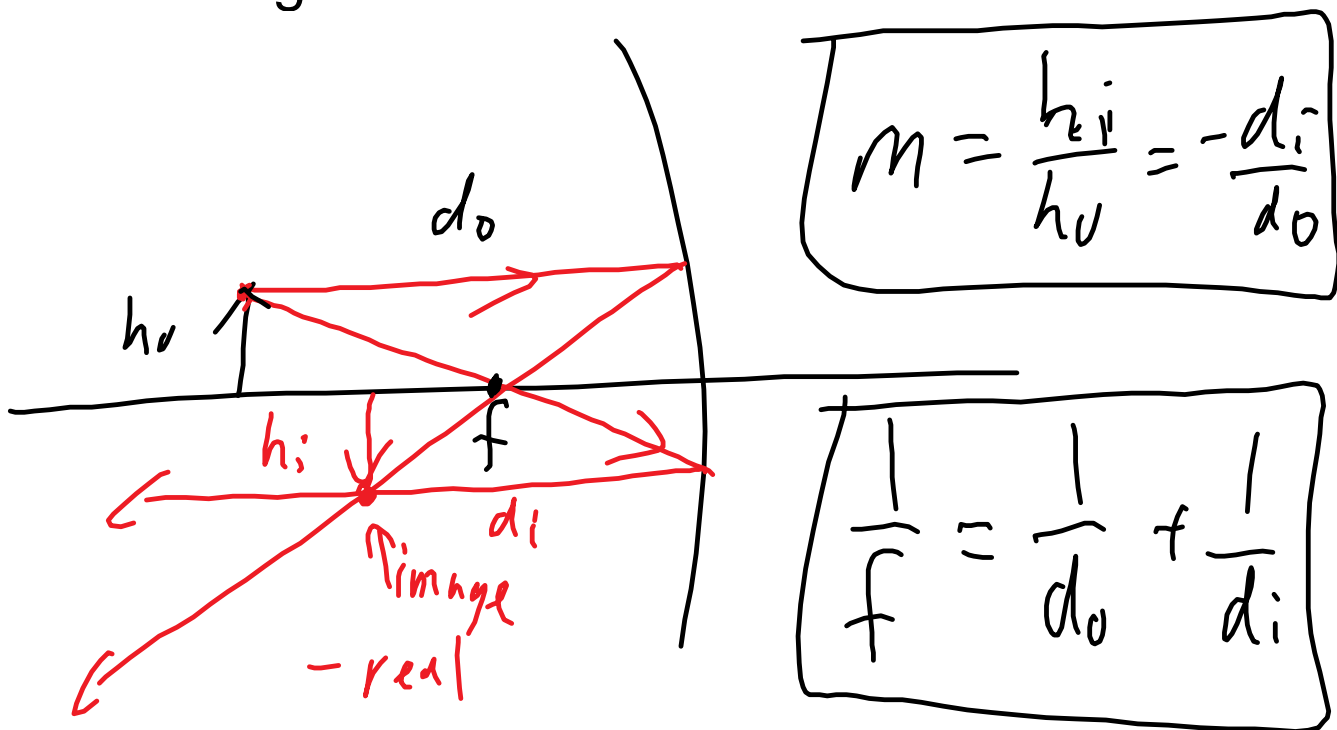


- 5 Draw a ray to/from the focal point. It will reflect parallel to the principle axis.





6. Where the light rays meet, or seem to meet, draw an arrow to show the height and location of the image.



Eg. A concave mirror with focal length 35 cm is 1.00 m away from a 8.0 cm filament.

- What is the centre of curvature of the mirror?
- Where should I put a piece of paper to observe the image of the filament?
- What is the size of the image? Is it real?

Solve using i) ray diagram ii) equations

Ch 18 q1-4 p374